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ABSTRACT

Materials listed in this annotated bibliography include selections chosen from all major subject areas, restricted largely to publications of the past 10 years, relating to each of the major school levels, and having practical significance to teachers and administrators as well as to school practice. Entries are listed under the following headings: general readings, research studies and reports, critical reading and thinking skills, study skills, readability of texts, social studies, language arts and literature, mathematics, and science. (JM)

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READING IN THE CONTENT FIELDS

An Annotated Bibliography

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Revised 1975

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INTRODUCTION

A bibliography concerned with *Reading in the Content Fields* must span a range of time, subject matter areas, and levels of maturity. To make the revision of this bibliography of most value to all concerned with reading in the content fields, the following procedures were observed:

- All of the major subject areas were included.
- Selections were restricted largely to publications of the past ten years.
- Selections were chosen to relate to each of the major school levels—elementary, junior high school, senior high school.
- Major emphasis was given to references that would be of practical significance to teachers and administrators. Research articles were included if their results were of significance to school practice.
- References to Eric sources were included rather than listing extensive numbers of research studies.

The recent concern for developing high levels of literacy has added to the significance of this area for teachers at all levels. It is here that the skills of reading can be used most effectively.

GENERAL READINGS

The references in this section were selected on two bases: 1) those that discussed the problems of content reading in a general way, with their examples selected from among the various content areas; and 2) those that discussed topics of particular significance as background or foundation for reading in the content fields.

General Books

AUKERMAN, ROBERT C. *Reading in the Secondary School Classroom*. New York: McGraw-Hill, 1972.

This book is a compilation of practical classroom strategies for teachers who wish to teach more effectively in the secondary school setting. It contains general suggestions for teaching reading in all academic subjects and specific guidelines and examples of lesson plans for the content areas of social studies, English, science, math, business, industrial arts, vocational education, and home economics.

HAFNER, LAWRENCE E. *Improving Reading in the Secondary Schools: Selected Readings*. New York: Macmillan, 1967.

Section 10 of this book includes papers concerned with reading problems, reading skills, and instructional materials and techniques in the subject matter fields. Content areas discussed are vocational arts, science and math, English, social studies, business, and foreign language. An excellent reference for the secondary teacher.

HARRIS, LARRY A., and CARL B. SMITH. *Individualized Reading Instruction: A Reader*. New York: Holt, Rinehart and Winston, 1972.

This book presents a good selection of articles on reading. Part V deals specifically with reading in the content areas.

HARRIS, LARRY A., and CARL B. SMITH. *Reading Instruction through Diagnostic Teaching*. New York: Holt, Rinehart and Winston, 1972.

This book contains several sections which would be particularly useful to teachers interested in content area reading. Chapter 15 deals specifically with concepts and skills to develop in content reading. Other related sections discuss critical reading, reading comprehension, and organizing for instruction.

HERBER, HAROLD. *Teaching Reading in Content Areas*. Englewood Cliffs, New Jersey: Prentice-Hall, 1970.

Herber sets forth the instructional problems the content area teacher faces and explains, in detail, his instructional framework for guiding students' reading. In addition, he explains teaching techniques which accompany his approach. The appendix includes actual examples of study guides from the areas of English, social studies, mathematics, and science. (This book is a basic handbook for the content area teacher.)

KARLIN, ROBERT. *Teaching Reading in High School.* Indianapolis, Indiana: Bobbs-Merrill, 1964.

Chapter 12 is concerned with developmental reading and the content field. The author presents a five-stage developmental reading lesson plan which incorporates readiness, first reading, discussion, rereading, and application. He provides examples of three lessons based upon this plan from the areas of science, social studies, and health.

MARKSHEFFEL, NED D. *Better Reading in the Secondary School.* New York: Ronald Press, 1966.

This text would be beneficial to both reading and content area teachers. Chapters 2, 5, and 8 concentrate on readiness, evaluation, and methods of instruction.

OLSON, ARTHUR V., and WILBUR S. AMES. *Teaching Reading Skills in Secondary Schools: Readings.* Scranton, Pennsylvania: International Textbook Company, 1970.

Chapter 8 of this book contains articles on developing skills in subject matter fields written by recognized experts in the reading field. Other chapters include articles discussing complimentary topics including evaluation, vocabulary and word recognition skills, and comprehension skills.

ROBINSON, H. ALAN, and ELLEN LAMAR THOMAS (Eds.). *Fusing Reading Skills and Content.* Newark, Delaware: International Reading Association, 1969.

This monograph contains papers which present overviews of reading and study skills including critical reading and vocabulary development. It contains papers by reading specialists and high school teachers who explain proposed techniques and actual classroom procedures they have used to teach reading in the content areas.

STRANG, RUTH, CONSTANCE M. MCCULLOUGH, and ARTHUR E. TRAXLER. *The Improvement of Reading.* New York: McGraw-Hill, 1967.

This book emphasizes the specific reading skills needed to read the organizational patterns of texts in particular subject matter fields. Part 3 provides the teacher with exercises and suggestions for teaching students how to handle these patterns.

UMANS, SHELLEY. *New Trends in Reading Instruction.* New York: Bureau of Publications, Teachers College, Columbia University, 1963.

Part 2 of this book examines reading in the subject disciplines. Topics include reading programs, instructional techniques, and program evaluation. Each section contains several lesson outlines explaining directed reading techniques.

VIOX, RUTH G. *Evaluating Reading and Study Skills in the Secondary Classroom,* Reading Aids Series. Newark, Delaware: International Reading Association, 1968.

The aim of the five papers in the booklet is to help content area teachers develop their own evaluation techniques for measuring the reading performances

of their students to determine the students' ability to succeed in a particular subject field.

WEISS, M. JERRY. *Reading in the Secondary Schools*. New York: Odyssey Press, 1961.

This book contains eleven articles on reading in the content fields of science, English, math, and social studies. Topics discussed include enjoyment of literature, comprehension, selection of materials, and the responsibility of subject teachers to teach reading.

General Articles

CLELAND, DONALD L., and JOSEPHINE T. BENSON (Eds.). *Reading in the Content Areas*, a report on the Fifteenth Annual Conference on Reading. Pittsburgh: University of Pittsburgh, 1959.

The variety of topics contained in this one report is impressive. One group of papers explains ways of developing comprehension skills in social studies, literature, science, and math. Another group offers information about school reading programs, content area reading programs, instructional techniques for remedial and developmental readers, reading interests, adult literacy, and disabled readers.

DALE, E. L., and JERRY L. MILLIGAN. "Techniques in Vocabulary Development," *Reading Improvement*, 7 (Spring 1970), 3-5, 13.

This article discusses a word analysis approach to vocabulary development which would be useful for teachers in and across all content area fields. By examining root words and prefixes and suffixes, students can increase their understanding of specific terms under study and be better prepared to meet new terms.

DEBOER, JOHN J., and GERTURDE WHIPPLE. "Reading Development in Other Curriculum Areas," *Development in and through Reading*, Sixtieth Yearbook of the National Society for the Study of Education. Chicago: University of Chicago Press, 1961.

The authors' presentation is organized as follows: reading as the responsibility of other curriculum areas, the effect of improvement in reading on achievement in other areas, developmental reading in the various curriculum areas, the implication of individual differences, the content fields and the mass media, sequential development of fundamental abilities and skills, and getting a program underway.

EARLE, RICHARD A., and PETER L. SANDERS. "Individualizing Reading Assignments," *Journal of Reading*, 16 (April 1973), 550-555.

This article describes "several techniques for individualizing reading assignments in subject matter classes." The authors suggest adjusting assignments according to student needs by providing the students with varying amounts of structure, using different materials, varying the length of assignments, and using grouping.

FIGUREL, J. ALLEN (Ed.). *Improvement of Reading through Classroom Practice*, 1964 Proceedings, Volume 9. Newark, Delaware: International Reading Association.

Part 3, Sequence 1 of the proceedings is concerned with reading in the content fields on the elementary through college levels. Fourteen papers cover such topics as classroom procedures, study skills, vocabulary development, reading rate, individualizing, and classroom organization.

Five Steps to Teaching Reading Success in Science, Social Studies, and Mathematics. New York: Metropolitan School Study Council, Teachers College, Columbia University, 1960.

This pamphlet explains how to develop reading skills in content areas according to a five-step approach to study skills. The study skills include readiness, concept development, silent reading, discussion, and rereading. A teaching approach for each content specific reading skill is outlined within the five-step study skill framework.

HARKER, W. JOHN. "Teaching Secondary Reading: Review of Sources," *Journal of Reading*, 16 (November 1972), 149-155.

This article contains a list of 52 bibliographic references of current literature on reading instruction at the secondary level. The author has categorized 16 topics dealing with reading and gives the sources and page numbers where information on a particular topic can be found. Section 8 deals with reading in subject areas.

Journal of Reading, 16 (April 1973).

This issue is devoted entirely to reading in the content areas. It contains reports of an International Reading Association project developed to enable "teachers of content disciplines and of reading at all school levels to work together to develop (reading) strategies to serve their common needs." In addition to describing committee and inservice activities, the articles present experts' viewpoints about what content area reading is and how effective instruction may be implemented.

KENNEDY, LARRY D. "Textbook Usage in the Intermediate-Upper Grades," *Reading Teacher*, 24 (May 1971), 723-729.

This article provides an overview of content reading which can be applied in all fields. It is concerned specifically with how the teacher can help the student determine the structure of his texts. It also suggests how the teacher can direct the student's reading by preparing him for new vocabulary and concepts and by asking appropriate questions.

NISSMAN, ALBERT. "The Directed Reading Activity," *Reading Improvement*, 4 (Fall 1966), 13-15.

This article is a lighthearted description of how to stimulate content area teachers to teach reading skills in their classrooms. The author provides a sample of his version of a directed reading activity, which includes study questions to help guide students through the reading.

PIERCEY, DOROTHY. "Briefing for Reading Assignments," *Reading Improvement*, 9 (Spring 1972), 10-11.

The author gives specific examples for helping students develop their understanding of vocabulary and general concepts and set purposes for their reading by using the teacher's, the author's, and their own questions.

SEBESTA, SAM (Ed.). *Ivory, Apes, and Peacocks: The Literature Point of View*, 1967 Proceedings, Volume 12, Part 2. Newark, Delaware: International Reading Association, 1968.

This volume discusses the development of reading skills in and through literature. It considers "the writing of literature, the selection of literature, and the role of literature in reading instruction."

SMITH, NILA BANTON. "Patterns of Writing in Different Subject Areas," *Journal of Reading*, 8 (October and November 1964), 31-37, 97-102.

In two articles, the author analyzes secondary textbooks to determine the common reading and study skills within them and the specialized reading skills needed to read patterns of writing specific to literature, science, math, and social studies.

SMITH, NILA BANTON. "Reading in Subject Matter Fields," *Educational Leadership*, 22 (March 1965), 382-385.

The author points out, for the teacher and the parent, some of the concepts and skills a child must use to read efficiently social studies, science, mathematics, and literature texts. She draws attention to the effect of the organizational pattern of the text upon reading success.

STRANG, RUTH. "Developing Reading Skills in the Content Areas," *High School Journal*, 49 (April 1966), 301-306.

The article lists reading skills specific to social studies, mathematics, science, and literature. It includes a list of objectives in reading for content area teachers and suggestions for two-part lesson plans which emphasize knowledge of content and reading proficiency. The author also emphasizes the necessity of continuous practice to reinforce reading skills the students have previously learned.

WAGNER, GUY. "What Schools Are Doing: Developing Reading Power in the Content Areas," *Education*, 85 (October 1964), 122-124.

The author lists concisely criteria for teachers to use to judge whether their students are developing efficiency in reading as it is related to content subjects. Included is a bibliography to reading guides dealing with methods and curriculum.

Working Draft of Guidelines for the Teaching of Reading in the Content Areas. Washington, D.C.: District of Columbia Public Schools, March 1971. Microfiche ED 059859.

General guidelines for teaching reading in content area classrooms are presented to familiarize teachers with critical areas in which students must develop their reading skills. Specific suggestions are presented for art, business, driver education, English, foreign languages, health, home economics, industrial arts, math, music, physical education, science, and social studies. Each section includes sample lesson plans.

RESEARCH STUDIES AND REPORTS

The extensive body of research literature in content area reading has been organized into three annotated bibliographies published in the Eric/Crier Reading Review Series. The references in these bibliographies come from four major sources:

- Published research literature in reading 1900-1966. The citations and annotations are those that appeared in the annual summaries of research in reading compiled on an annual basis by the Reading Research Center of the University of Chicago.
- USOE sponsored research on reading. This source includes all USOE projects on reading funded by the Bureau of Research since its inception in 1956. The basic documents from this source are available from EDRS/NCR in microfiche or hard copy.
- Recent doctoral dissertation research in reading (1960—). Copies of the documents from this source are available from University Microfilms, Ann Arbor, Michigan.
- International Reading Association conference proceedings reports on elementary and secondary reading.

Additional information about these bibliographies and other publications and services of the Eric system can be obtained from:

ERIC/RCS
National Council of Teachers of English
1111 Kenyon Road
Urbana, Illinois 61801

HARRIS, LARRY A. (Comp.). "Research on Reading in the Content Fields: Language Arts and Literature," *Eric/Crier Reading Review Series*, 2, Bibliography 11, 1968.

LAFFEY, JAMES L. (Comp.). "Research on Reading in the Content Fields: General and Other Subjects," *Eric/Crier Reading Review Series*, 2, Bibliography 12, 1968.

LAFFEY, JAMES L. (Comp.). "Research on Reading in the Content Fields: Mathematics, Science, and Social Studies," *Eric/Crier Reading Review Series*, 2, Bibliography 12, 1968.

The following references review research on some aspect of content reading or report significant research studies concerning reading in content areas.

COURTNEY, LEONARD. "Are We Really Improving Reading in the Content Fields?" in Nila Banton Smith (Ed.), *Current Issues in Reading*, 1968 Proceedings, Volume 13, Part 2. Newark, Delaware: International Reading Association, 1969, 18-34.

Courtney asks whether reading in the content fields is improving. He attempts to answer the question by examining research studies which indirectly address it but he finds the results of his research inconclusive. In two succeeding articles, Douglas M. Collins and Carlton M. Singleton respond to Courtney, supporting both a positive and a negative answer to his question.

HERBER, HAROLD L., and PETER L. SANDERS. *Research in Reading in the Content Area*, first year report. Syracuse, New York: Reading and Language Arts Center, Syracuse University, 1969.

This monograph contains position papers and reports on a three-year research grant studying "reading improvement in the content areas in secondary schools." Herbert provides an overview of content reading instruction. Section 2, on lesson structure, is particularly informative to the teacher. Other sections discuss comprehension and student attitudes.

HILL, MARGARET K. "Reading in the Content Fields," in Mildred A. Dawson (Ed.), *Combining Research Results and Good Practice*, 1966 Proceedings, Volume 11, Part 2. Newark, Delaware: International Reading Association, 1967, 19-28.

This article reviews literature published between 1925 and 1959. It summarizes the papers most relevant to the content fields and discusses their findings and conclusions.

LAFFEY, JAMES L. (Ed.). *Reading in the Content Areas*. Newark, Delaware: International Reading Association, 1971. Microfiche ED 065829.

This monograph reviews selected research on reading in the four main content areas—literature, math, science, and social studies. Following each review is a section explaining the application of the research to classroom instruction. A condensed version of the monograph is available in microfiche.

LEEDS, DONALD S. "Summary of Research Related to Reading in the Content Areas: Science and Mathematics," *Journal of the Reading Specialist*, 10 (December 1970), 88-95.

LEEDS, DONALD S. "Summary of Research Related to Reading in the Content Areas (Part II): English and Social Studies," *Journal of the Reading Specialist*, 10 (March 1971), 175-186.

These summaries provide an historical perspective on reading in the content areas and concentrate on specific research in the areas of math, science, English, and social studies. In addition, they direct the reader to additional sources contained in the bibliographies.

MICHAELS, MELVIN L. "Subject Reading Improvement: A Neglected Teaching Responsibility," *Journal of Reading*, 9 (October 1965), 16-20.

This study attempts to provide a multisubject matrix of reading difficulties for teachers to use to analyze student problems. It demonstrates how a teacher's reading assignment determines the reading skills which a student must use and it includes an analysis of the kinds of reading problems students themselves say they have in dealing with these assignments.

ZEPP, GEORGE DANIEL. "The Improvement of Reading and Reading Study Skills in Grades 7 and 8 through English, History, Geography, and Science," *Dissertation Abstracts*, 26 (1963). Ann Arbor, Michigan: University Microfilms. Order No. 64-6360.

The goals of this study were to 1) identify reading and reading study skills in English, history, geography, and science and to assist teachers in helping their students develop these skills in regular classes; and 2) show the effects and applications of an inservice program directed toward these ends.

CRITICAL READING AND THINKING SKILLS

The references in this section relate to the problems of developing thoughtful, critical readers in the various disciplines. A teacher interested in this topic would do well to read the anthology, *Critical Reading*, by Martha L. King, Bernice D. Ellinger, and Willavene Wolf.

DAWSON, MILDRED A. (Comp.). *Developing Comprehension Including Critical Reading*. Newark, Delaware: International Reading Association, 1968.

This volume is a collection of articles, selected from IRA journals and conference proceedings, on the broad topic of comprehension, including such areas as critical reading and vocabulary. Although reading in the content areas is not discussed directly, many of the papers in this volume are relevant for improving content reading.

FIGUREL, J. ALLEN (Ed.). *Reading and Inquiry*. 1965 Proceedings, Volume 10. Newark, Delaware: International Reading Association.

Teaching specific thinking skills is the underlying theme of ten papers in Sequence 4 on Comprehension in the Content Fields. The necessity of teaching these skills from the primary grades through college is emphasized. Practical ideas for developing various types of thinking are incorporated in each address.

JENKINSON, MARION D. *Realms of Reading: Rhetoric, Reasoning, and Reflection.* Microfiche ED 023543.

This article presents a good basic description for the teacher. It explains how to analyze the content and the organization of written material, and how to present this analysis to students. It also discusses the importance of rhetoric, reasoning, and reflection in reading.

KING, MARTHA L., BERNICE D. ELLINGER, and WILLAVENE WOLF. *Critical Reading.* Philadelphia: J. B. Lippincott, 1967.

This book of readings covers all aspects of critical reading. It combines research data with practical suggestions to give the teacher at any level a complete reference on critical reading. Many articles relate directly to the teaching of critical reading in the content areas.

LACKEY, GEORGE H., JR., and DORIS ROLLINS. "History and Current Events: A Time and Place for Critical Reading," *Journal of Reading*, 8 (May 1965), 373-377.

The authors describe the attempts of one school to transform the teaching of critical reading and analysis from a nebulous concept to a definite operational procedure. Results are tentative but indicate a practical and promising approach. Practical suggestions for planning the curriculum enumerate specific reading skills to teach in social studies classes.

LAZARUS, ARNOLD. "Neglected Steps in the Teaching of Reading," *Journal of Developmental Reading*, 7 (Spring 1964), 215-216.

This article discusses the importance of the student learning how to read critically. It emphasizes the point that the student must understand what the writer means before he can evaluate the writer's ideas.

STUDY SKILLS

Some authors equate reading in the content areas with the application of the study skills to the various areas of study.

ESTES, THOMAS H. "Teaching Effective Study Reading," *Reading Improvement*, 8 (Spring 1971), 11-12, 20.

This article is a concise outline of a three-condition process of anticipation, manipulation, and evaluation for effective reading. It suggests questions teachers can have students ask themselves before and after they read. It also includes methods for helping students organize what they have read so that they can improve their comprehension.

FAY, LEO. "How Can We Develop Reading Study Skills for the Different Curriculum Areas?" in Larry A. Harris and Carl B. Smith (Eds.), *Individualizing Reading Instruction: A Reader*. New York: Holt, Rinehart and Winston, 1972.

This article presents an overview of the problems a reader faces in various content areas. It discusses the importance of the reader's ability to use the library and dictionary, to interpret illustrations and other visual material, and to grasp the author's style and organization.

READABILITY OF TEXTS

These references reflect a growing concern with the issue of the readability level of content area textbooks.

HILL, WALTER. "Content Textbook: Help or Hindrance?" *Journal of Reading*, 10 (March 1967), 408, 413.

The author cites research which indicates the formidable reading/learning task presented by American textbooks. He urges a systematically controlled learning program to guide the students' development of the reading study skills needed to read these texts.

JOHNSON, ROGER E., and EILEEN B. VARDIAN. "Reading, Readability, and Social Studies," *Reading Teacher*, 26 (February 1973), 483-488.

In this study, the authors use measurements developed by Spache, Fry, Flesch, and Dale-Chall to determine the readability of elementary social studies texts published by Allyn and Bacon, Fideler, Field, Harcourt Brace, and Laidlaw Brothers. Their conclusions indicate that all of these texts require average to above average reading ability. The obvious implication for social studies teachers is that they will have to assist their students as they read these texts.

NEWPORT, JOHN FRANK. "An Evaluation of Selected Series of Elementary School Science Textbooks," *Dissertation Abstracts*, 26 (1965). Ann Arbor, Michigan: University Microfilms. Order No. 65-8015.

The author compared the opinions of elementary teachers and elementary science textbook authors with research findings to evaluate the elementary science textbook series of nine publishers. He found that three series (Heath, Macmillan, Ginn) would better serve teachers who have students with reading problems in their classrooms.

SOCIAL STUDIES

nal Council for the Social Studies has periodically published bulletins ooks that contain material relevant to reading in the social studies. IRA ns are also rich sources for articles on this topic.

, HELEN MCCRACKEN, and MARY VIRGINIA GAVER. "Making History Live gh Reading," in W. H. Cartwright and R. L. Watson (Eds.), *In- ting and Teaching American History*, Thirty-first Yearbook of the nal Council for the Social Studies. Washington, D.C.: National Educa- ssociation, 1961, 398-414.

icle provides guidelines for the selection and use of reading materials ry instruction. It discusses trends in the reading habits of young people he publishing business. Recommended bibliographies are included.

, HELEN MCCRACKEN (Ed.). *Skill Development in Social Studies*, Thirty- Yearbook of the National Council for the Social Studies. Washington, National Education Association, 1963.

me of the yearbook relates to reading and related study skills. Chapter len Huus, is concerned specifically with the problems of reading in the udies: developing vocabulary, adjusting reading rate, discerning re- ips, and expanding concepts. An annotated bibliography is included.

IAN. "Reading Skills in World Geography," *Reading Improvement*, 7 er 1970), 73-74, 79.

icle lists reading and study skills in geography which the teacher could elp corrective or developmental reading classes. These suggestions, , would be beneficial to all readers. It also suggests ways to introduce nit of study.

THOMAS HORN, and CONSTANCE MCCULLOUGH. *Improving Reading in the ntary Social Studies*, Bulletin 33. Washington, D.C.: National Council e Social Studies, 1961.

hors of this bulletin organized their discussion around nine questions, ly asked by elementary teachers, concerning reading in the social Topics considered are coping with individual differences; effective he textbook; developing skill in reading charts, graphs, tables, and sing reference books and library resources; and developing critical skills. An annotated bibliography is included.

IAN, and others. *Developmental Reading in Social Studies: A Guide for ers* (rev. ed.). Nassau County, New York: Sewanhaka Central High l District Number 2, 1965. Microfiche ED 024530, ED 024545-548.

hors present a complete set of study guides for teaching U.S. history, g vocabulary development exercises and worksheets to develop and study skills. Topics covered include: discovery of the New World,

the colonies and their struggle for independence, the Civil War, the rise in industry and agriculture, and the U.S. as a world leader.

HUUS, HELEN. "Interpreting Research in Children's Literature," in Mildred A. Dawson (Ed.), *Children, Books, and Reading*, Perspectives in Reading No. 3. Newark, Delaware: International Reading Association, 1964.

One section of this publication reviews and interprets research studies in children's literature. The studies were done on reading preferences, poetry, mass media, reading materials, and the effects of reading.

MCAULAY, J. D. "Social Studies Dependent on Reading," *Education*, 82 (1961), 87-89.

The article discusses problems confronting the teacher of social studies. It emphasizes how the teacher can best use textbooks and supplementary materials in the social studies classroom. It includes practical suggestions for helping slower readers.

MICHAELIS, JOHN U. (Ed.). *Social Studies in Elementary Schools*, Thirty-second Yearbook of the National Council for the Social Studies. Washington, D.C.: National Education Association, 1962.

Chapter 6 is concerned with skills and processes in the social studies. Of special significance in relation to reading are discussions of critical thinking and problem solving, group work, communication skills, and map reading skills.

NOWELL, LILLIAN. "Developing Concepts in the Social Studies," *Reading Teacher*, 17 (September 1963), 10-15.

The author outlines problems students face with the many complex and abstract concepts found in the social studies and describes several classroom procedures teachers might use to help students in concept development.

PAGE, LINDA TURPIN. "Reading and Study Skills in Junior High History," *Reading Improvement*, 6 (Fall 1969), 41-42.

The author explains how she incorporated the teaching of reading and study skills into one U.S. history unit. Her students appeared to gain in comprehension and in their ability to read the material when they were shown a method by which they could master both content and reading skills.

PRESTON, RALPH C. (Ed.). *A New Look at Reading in the Social Studies*, Perspective in Reading No. 12. Newark, Delaware: International Reading Association, 1969.

In these five papers, teachers will find topics and approaches to reading significantly different from those usually associated with content area reading. Topics discussed include language arts in social studies instruction and use of primary sources in instruction. The ideas presented would be useful to both social studies and reading teachers.

PRESTON, RALPH C., J. WESLEY SCHNEYER, and FRANC J. THYNG. *Guiding the Social Studies Reading of High School Students*, Bulletin 34. Washington, D.C.: National Council for the Social Studies, 1963.

This bulletin discusses the importance of guiding high school students as they read social studies materials and considers such topics as providing for individual differences and stimulating wide reading in the content field. It explains, in-depth, practical methods for teaching students how to read their texts.

WITTY, PAUL A. "Role of Reading in the Social Studies," *Elementary English*, 39 (1962), 526-569.

The article emphasizes the necessity for formal reading instruction in the content areas. To effectively guide students' reading, teachers must have purposes, goals, and methods. The article discusses five essential aspects for reading proficiency.

LANGUAGE ARTS AND LITERATURE

The relationship of reading to the language arts, and specifically to literature, is a matter of major interest in the publications of both IRA and NCTE. In reviewing this area, it is recommended that one obtain bibliographies from the two associations and review their journals and other publications. Elementary teachers will find *Elementary English* and *The Reading Teacher* most helpful. For secondary teachers *The English Journal* and the *Journal of Reading* are the most appropriate sources.

CARRIAR, SHIRLEY M. "Teaching Reading Skills in the Junior High School," *English Journal*, 58 (December 1969), 1357-1361.

The author lists fourteen specific reading skills readers need to handle literature. She includes stories from junior high anthologies which teachers can use to teach students these skills.

EARLE, RICHARD A. "Using Literature to Teach Reading," *Reading Improvement*, 9 (Fall 1972), 35-37.

The author proposes that using literature to teach reading is really quality instruction in literature. He presents a study guide based on Robert Frost's poem, "Fire and Ice" as an example of the synonymity of appropriate skills instruction and quality content instruction. (The reader must be familiar with the work of Harold Herber to understand the skills presented and their rationale.)

PARKER, ELIZABETH ANN. *Teaching the Reading of Fiction*. New York: Teacher's College Press, Columbia University, 1969.

The author provides detailed suggestions to teachers for helping their students develop reading abilities that are "crucial to comprehending prose fiction as an

art form." The manual is designed for teachers of the intermediate grades, but it would be relevant for teachers at all levels.

SMITH, RICHARD J. "English Teacher and Reading Teacher," *Journal of Reading*, 16 (December 1972), 245-250.

Smith gives suggestions for prereading and postreading instruction which would be helpful to the classroom teacher who is not specifically trained in reading. He also cites evidence to show the success of guided reading instruction. This information would be applicable in content areas other than English.

MATHEMATICS

In compiling this section of the bibliography, an effort was made to use sources from mathematics education. Hence, several references are included from *The Arithmetic Teacher* and *The Mathematics Teacher*. Persons interested in this area will find the major sources included within the publications of the two professional organizations, National Council of Teachers of Mathematics and International Reading Association.

AARON, I. E. "Reading in Mathematics," *Journal of Reading*, 8 (May 1965), 391-395, 401.

The author discusses vocabulary and concepts which the reader may have difficulty reading in math texts. He suggests reading techniques appropriate to mathematics and outlines a study procedure for approaching math problems which the teacher can explain to students to help them read more efficiently.

AIKEN, LEWIS R., JR. "Language Factors in Learning Mathematics," *Bureau of Educational Research*, 42 (Summer 1972), 359-385.

This review of research explains how the language of mathematics affects the reader's comprehension. It provides an insight into the kinds of problems a reader may encounter in reading math and the reasons for them. The article includes an extensive bibliography which can be used for further reference.

BALOW, IRVING H. "Reading and Computation Ability as Determinants of Problem Solving," *Arithmetic Teacher*, 11 (January 1964), 18-22.

This article reports on a study of the relationship of intelligence and reading to computation and problem solving ability of sixth grade students. The study shows that a need exists to teach reading skills in mathematics.

EARP, WESLEY N. "Reading in Mathematics." Microfiche ED 036397.

This article discusses research regarding specific problems readers will have in reading mathematics. Since the readability level of the texts is higher than that of the performance levels of the students in the classroom in which the texts are used, the students must be taught specialized math vocabulary to comprehend these texts. The article gives suggestions to the teacher about how to deal with these readability problems.

HEDDENS, JAMES W., and KENNETH J. SMITH. "The Readability of Elementary Mathematics Books," *Arithmetic Teacher*, 11 (November 1964), 466-468.

The Spache and Dale-Chall Readability formulas are used to determine the readability of five arithmetic textbooks for grades one through six.

KIRKPATRICK, JOAN. "Teacher References in Reading and Mathematics," *Reading Improvement*, 8 (Fall 1971), 62-64.

A bibliography of reading in mathematics which includes articles emphasizing the development of basic mathematical ideas—particularly technical terms and symbols, and the difficulties the student encounters in reading story problems.

MORGENSTERN, ANNE. "Reading Mathematics Materials," in J. Allen Figurel (Ed.), *Reading and Realism*, 1968 Proceedings, Volume 13, Part 1. Newark, Delaware: International Reading Association, 1969, 132-136.

This paper discusses problems students may encounter as they read the materials in a modern math program. It stresses the importance of the students' abilities to interpret mathematical ideas and concludes with suggestions to the teachers for helping students.

PRIBNOW, JACK R. "Why Johnny Can't 'Read' Word Problems," *School Science and Mathematics*, 69 (October 1969), 591-598.

This article explains a teaching technique which will help guide students in their reading of story problems. The students can be more successful at working the problems if they are better able to organize and analyze the information given in the problem by first determining the equation they must use and the operation they must perform to solve the problem.

TASCHOW, HORST. "Reading Improvement in Mathematics," *Reading Improvement*, 6 (Winter 1969), 62-68.

This article explains the kinds of problems students may confront in reading math problems. It presents an informal reading inventory which the teacher can use to determine which students do not understand mathematics concepts. It also suggests that the teacher use a directed reading activity to assist students in their reading.

YOUNG, WILLIAM E. "The Language Aspects of Arithmetic," *School Science and Mathematics*, 57 (March 1957), 171-174.

The author emphasizes the importance of mathematical vocabulary. He gives examples demonstrating the confusion students may encounter between the popular usage and the specific mathematical usage of a particular term. He provides five practical suggestions for developing understanding of terms.

SCIENCE

The selections in this area reflect the relative lack of literature on science reading at the secondary level. The secondary teacher is referred to the books of readings by Dawson and Hafner and to IRA publications for specific references.

BENNETT, LLOYD M., and CHERIE CLODFELTER. "Study of the Integration of an Earth Science Unit Within the Reading Program of a Second Grade by Utilizing the Word Analysis Approach," *School Science and Mathematics*, 66 (September 1966), 729-736.

This study reports three different procedures for integrating the teaching of reading skills with a science unit. The students exposed to a word analysis approach did appear to learn more than those taught by a more traditional approach to the content.

EDIGER, MARLOW. "Reading in the Elementary School Science Program," *Science Education*, 49 (October 1965), 389-390.

The author believes motivation and interest are the keys to reading in the content areas. He suggests procedures and activities to supplement reading experiences in science and indicates that teachers should encourage students to ask questions as they read.

LOCKWOOD, J. BRYCE. "Research Problems in Reading Science," *School Science and Mathematics*, 59 (October 1959), 551-556.

This article summarizes several studies concerned with reading in science and explains to the teacher why texts are hard for students to read. It contains several suggestions for writers and publishers of science books.

MCADA, HARLEEN W., and CAROLYN NEAL HEDLEY. "Reading and the New Science," *Science Education*, 53 (March 1969), 151-153.

The authors point out the organizational patterns of the new math materials and the kinds of skills students must use to read them. The new science materials which are individualized and self-pacing are geared to process rather

than produce and require the child to reorient his thinking. They, therefore, necessitate his learning different reading skills.

SHEPHERD, DAVID L. "Teaching Science and Mathematics to the Seriously Retarded Reader in the High School," *Reading Teacher*, 17 (September 1963), 25-30.

The author suggests informal diagnosis to determine students' reading abilities. He stresses the importance of relating to students' backgrounds so they can see practical application in their learning. He also emphasizes the need to present new vocabulary, interrelationship of ideas, and organization of texts.

MISCELLANEOUS

AHRENDT, KENNETH M., and SHIRLEY S. HASELTON. "Essential Reading Skills in Bookkeeping," *Journal of Reading*, 16 (January 1973), 314-347.

This article discusses the responsibility of bookkeeping teachers to help their students read the text. It reviews the SQ2R study method and suggests how teachers can present new vocabulary and help their students respond effectively to content clues and inflectional endings in the content material.

ALBERT, BURTON, JR. "Purple Marbles and Little Red Hula Hoops," *Reading Teacher*, 24 (April 1971), 647-651.

This article lists skills students need to develop to read visual materials in texts and suggests strategies teachers can use to make students aware of how to read visuals.

TOOTHAKER, ROY E. "A New Procedure for Reading Biography," *Reading Improvement*, 8 (Spring 1971), 13-15.

This article outlines in detail a procedure for reading biography which could be applied to reading in other areas. It offers an abundant number of questions which the reader can ask himself to gain comprehension and perspective about the book and about the life of the person it describes. (The number of questions could be reduced before they are presented to students.)